INFORMATION PAPER

DASG-PPM-NC **29 October 2001**

SUBJECT: Antibiotics and anthrax

1. PURPOSE: To provide information about antibiotic use to prevent anthrax infections.

2. FACTS:

a. Antibiotics are used to treat bacterial infections. Because all antibiotics have side effects, these medications are usually reserved to treat individuals after they develop signs or symptoms of illness. In other situations, antibiotics may be given "prophylactically" to persons who are well to prevent illness. Examples include giving penicillin prior to dental procedures in patients with certain types of heart disease or to all newly arriving basic trainees at certain installations where there has been an outbreak of rheumatic fever.

b. A decision to use antibiotics to prevent an infection involves a balance between risks and benefits. The primary benefit is, of course, preventing the illness. One potentially very serious risk is the development of side effects as a result of taking the medication. For example, persons who are allergic to penicillin can have a life-threatening reaction to a single dose of the medication. Another risk is that wide-scale use of antibiotics may induce "resistance" among the bacteria. For each bacteria, only a few antibiotics are effective. If the bacteria becomes resistant to one or more medications, it may be very difficult to treat the individual and protect others against its spread.

c. Recently, several medications have been used to prevent anthrax infection in persons who have been exposed. This is known as "post-exposure prophylaxis" or "PEP". For the reasons cited above, the use of PEP has been limited to individuals who have had a "credible" exposure to potential anthrax spores. This would include, for example, persons working in mailrooms where anthrax spores have been found or in facilities that receive mail directly from an affected mailroom. In each case where post-exposure prophylaxis is considered, a health care provider evaluates the patient and determines whether the exposure is credible and prescribes antibiotics when appropriate. Sometimes, information obtained after medications have been prescribed indicates that the exposure was not credible (ie, all clinical and environmental tests are negative), and the medication is discontinued.

d. A number of antibiotics have been considered for anthrax PEP. These include penicillin, ciprofloxacin, and doxycycline. Laboratory studies of the anthrax strains found at the Senate Hart building and other locations show that all can be treated with any of these antibiotics. Because of the possibility of serious allergic reactions to penicillin, this medication is not recommended as the first choice. Ciprofloxacin has a number of side effects that occur relatively frequently, including central nervous system effects, allergic reactions, and negative interactions with other medications. It is also the most expensive medication. Doxycycline causes side effects less frequently and is relatively inexpensive. For these reasons, the Centers for Disease Control has recommended that all individuals receiving PEP for anthrax be treated with doxycycline for 60 days. Some individuals may receive an initial 5- or 10-day course of therapy, pending confirmation of the exposure. When the exposure is confirmed, additional medication will be prescribed to complete a full 60-day course of treatment.

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